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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,240	07/31/2001	Daryl Carvis Cromer	RPS9 2000 0079	2810

7590 05/05/2005

IBM Corporation
Personal Systems Group Legal Dept.
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EXAMINER

PYZOCHA, MICHAEL J

ART UNIT PAPER NUMBER

2137

DATE MAILED: 05/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/919,240	Applicant(s) CROMER ET AL.	
	Examiner Michael Pyzocha	Art Unit 2137	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2005.
 2a) ☒ This action is FINAL. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-25 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. Claims 1-25 are pending.
2. Amendment filed 04/18/2005 has been received and considered.

Claim Rejections - 35 USC § 112

3. The rejection of claims 13-18 have been withdrawn based on Applicant's amendment to claim 13.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-7, 11-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sibert (U.S. 6,832,316), further in view of Tello (U.S. 6,463,537), and further in view of Langford (U.S. 6,507,911).

As per claim 1, Sibert discloses a method providing security for a plurality of data records stored on a computer-

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readable medium within a computing system, wherein said computer readable medium additionally stores a first data structure, starting at a first location within said computer readable medium, locating data records in said plurality thereof, said method a decryption subroutine executed as said computing system is being initialized, said decryption subroutine includes determining that electrical power has been turned on in said computing system, reading said encrypted version of said first data structure from said nonvolatile storage, decrypting said encrypted version of said first data structure to form said first data structure (see column 6 lines 55-67) and a method for encrypting (see column 5 lines 41-67).

Sibert fails to disclose the encryption subroutine includes receiving a request to shut down said computing system, reading said first data structure from said computer readable medium, encrypting said first data structure to produce an encrypted version of said first data structure.

However, Tello teaches performing tasks at shut down (see column 14 lines 1-41).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to perform Sibert's method of encryption at shut down as taught by Tello.

Motivation to do so would have been to hide data storage devices (see Tello column 14 lines 1-41).

The modified Sibert and Tello system fails to disclose, as a part of the encryption method, deleting said first data structure from said computer readable medium, and storing said encrypted version of said first data structure in nonvolatile storage, starting at a second location within said nonvolatile storage, and, as a part of the decryption method, writing said data structure to said computer readable medium, starting at said first location.

However, Langford teaches such a replacement method (see column 4 line 63 through column 5 line 18).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use Langford's method of overwriting in the modified Sibert and Tello system.

Motivation to do so would have been to allow no plaintext of the original data to be present (see Langford column 5 lines 1-18).

As per claims 2-3, the modified Sibert, Tello and Langford system discloses the second location is at the first location on the readable medium (see Langford column 4 line 63 through column 5 line 18).

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As per claim 4, the modified Sibert, Tello and Langford system discloses the nonvolatile storage is a memory structure, separate from said computer readable medium, with said computing system (see Sibert column 6 lines 55-67).

As per claim 5, the modified Sibert, Tello and Langford system discloses encryption of said first data structure occurs within a cryptographic processor in said computing system using an encryption key, said cryptographic processor is separate from a system processor within said computing system, and decryption of said encrypted version of said first data structure occurs within said cryptographic processor in said computing system using a decryption key generated from data stored in secure storage accessed by said cryptographic processor (see Sibert column 5 lines 49-56 and column 6 lines 61-67 where the "cryptographic circuitry" is the processor).

As per claim 6, the modified Sibert, Tello and Langford system discloses a public key of said computing system is used for encryption of said first data structure, and a private key of said computing system is used for decryption of said encrypted version of said first data structure (see Tello column 8 lines 34-40).

As per claim 7, the modified Sibert, Tello and Langford system discloses the encrypted version of said first data

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structure is equal in length to said first data structure (see Langford column 4 line 62 through column 5 line 18).

As per claims 11-12, the modified Sibert, Tello and Langford system discloses said method additionally comprises a configuration subroutine providing a user interface for setting and resetting a configuration bit, and said encryption subroutine is executed according to a state of said configuration bit and said encryption subroutine additionally includes setting a flag bit in non-volatile storage, and said decryption subroutine is executed only when said flag bit is set (see Tello column 14 lines 34-40 where it is inherent that a bit is set for encryption and decryption should only happen for encrypted data).

As per claims 13 and 19, the modified Sibert, Tello and Langford system discloses a method providing security for a plurality of data records stored on a computer readable medium within a computing system, wherein said computer medium additionally stores a first data structure starting at a first location within said removable computer readable medium, locating data records in said plurality thereof, said method comprises an encryption subroutine executed to encrypt said first data structure and a decryption subroutine subsequently executed to decrypt an encrypted version of said first data

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structure, said encryption subroutine includes reading said first data structure from said computer readable medium, encrypting said first data structure within a cryptographic processor in said computing system using an encryption key to produce an encrypted version of said first data structure, deleting said first data structure from said computer readable medium, and storing said encrypted version of said first data structure in nonvolatile storage, starting at a second location within said nonvolatile storage, and said decryption subroutine includes reading said encrypted version of said first data structure from said nonvolatile storage, decrypting said encrypted version of said first data structure within said cryptographic processor in said computing system using a decryption key generated from data stored in secure storage accessed by said cryptographic processor to form said first data structure, and writing said data structure to said computer readable medium, starting at said first location (see rejection of claim 5).

Claims 14-16 and 20-22 are rejected as in claims 1, 11-12 respectively.

As per claims 17-18 and 23-24, the modified Sibert, Tello and Langford system discloses a cryptographic selection subroutine providing a graphical user interlace, said

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cryptographic selection subroutine includes displaying a choice between encryption and decryption, displaying representations of computer readable medium in said computing system, and receiving a cryptographic selection signal indicative of whether encryption or decryption is to occur and of a chosen computer readable medium, said encryption subroutine is executed in response to receiving cryptographic selection signal indicating encryption is to occur, with said first data structure of said chosen computer readable medium being encrypted, and said decryption subroutine is executed in response to receiving a cryptographic selection signal indicating decryption is to occur, and with said encrypted version of said first data structure of said chosen computer readable medium being decrypted wherein said encrypted version of said first data structure is stored in nonvolatile storage on said chosen computer readable medium (see Langford column 6 lines 52-67 for the GUI and the encryption/decryption and hard drives as in Tello and Sibert applied to previous claims).

1. Claims 8-9 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over the modified Sibert, Tello and Langford system as applied to claims 1 and 19 above, and further in view of Robinson et al (U.S. 5,544,356).

As per claims 8-9 and 25, the modified Sibert, Tello and Langford system fails to disclose the computer readable medium additionally stores a second data structure, starting at a second location within said computer readable medium, describing characteristics of said first data structure, and said encryption subroutine additionally includes reading said second data structure to determine characteristics of said first data structure wherein said first data structure is a file allocation table, and said second data structure is a boot record.

However, Robinson et al teaches a boot record describing the file allocation table (see column 1 line 64 through column 2 line 4).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the modified Sibert, Tello and Langford system to encrypt Robinson et al's file allocation table.

Motivation to do so would have been that the boot record includes the number of copies of the file allocation table (see Robinson et al column 1 line 64 through column 2 line 4).

6. Claims 8, 10 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over the modified Sibert, Tello and Langford system as applied to claims 1 and 19 above, and further in view of Starek et al (U.S. 6,070,174).

As per claims 8, 10 and 25, the modified Sibert, Tello and Langford system fails to disclose the computer readable medium additionally stores a second data structure, starting at a second location within said computer readable medium, describing characteristics of said first data structure, and said encryption subroutine additionally includes reading said second data structure to determine characteristics of said first data structure wherein said first data structure includes an array of file records in a master file table of a NTFS file, and said second data structure includes metafile data in said master file table.

However, Starek et al teaches such data structures (see column 10 lines 29-51).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the modified Sibert, Tello and Langford system to encrypt Starek et al's file array.

Motivation to do so would have been that the metafile describe the file system structure (see column 10 lines 29-51).

7. Claims 1-25 are rejected as above but in view of JP2001202167A, which discloses a control method for a computer,

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involves encrypting and decoding data on memory based on power supply ON/OFF.

Response to Arguments

8. Applicant's arguments filed 04/18/2005 have been fully considered but they are not persuasive. Applicant argues: Sibert fails to disclose decrypting, at start-up, a data structure which locates data records; Tello fails to disclose that a data structure locating data records should be decrypted and encrypted at start-up and shut down; Langford does not anticipate that the data being encrypted and deleted includes a data structure indicating the locations of records within data to be protected; the references teach away from the claimed invention; Langford fails to teach that such encrypted data should be stored in a location within non-volatile storage separate from the computer readable medium; Sibert, Tello, and Langford alone or in combination fail to disclose a microprocessor to be programmed to execute a data structure encryption routine to encrypt the data structure; the Japanese patent fails to disclose the data structure with location information; and that the further references fail to cure the deficiencies of the previously described prior art.

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Regarding Applicant's argument that Sibert fails to disclose decrypting, at start-up, a data structure which locates data records, Applicant is again directed to column 6 lines 55-67 where the control programs have to have information about records used in the operating system in order to initialize and control it. Also in the passage Sibert discloses the decrypting at system start-up as admitted in Applicant's arguments on page 11 lines 18-21.

Regarding Applicant's argument that Tello fails to disclose that a data structure locating data records should be decrypted and encrypted at start-up and shut down, the Tello reference is only relied upon for its teaching of performing tasks at start-up and shut down.

Regarding Applicant's argument that Langford does not anticipate that the data being encrypted and deleted includes a data structure indicating the locations of records within data to be protected, Langford was only relied upon for its teaching of deleting encrypted data.

Regarding Applicant's argument that the references teach away from the claimed invention, for described above the argument is moot.

Regarding Applicant's argument that Langford fails to teach that such encrypted data should be stored in a location within

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non-volatile storage separate from the computer readable medium, Langford is not relied upon for this limitation, Sibert column 6 lines 55-67 was relied upon.

Regarding Applicant's argument that Sibert, Tello, and Langford alone or in combination fail to disclose a microprocessor to be programmed to execute a data structure encryption routine to encrypt the data structure, Applicant is further directed to Sibert column 5 lines 46-57 where Sibert discloses the specifics of the encoding system which includes a processor that performs the encryption.

Regarding Applicant's argument that the Japanese patent fails to disclose the data structure with location information, for the reasons provided above, the rejection stands.

Regarding Applicant's argument that the further references fail to cure the deficiencies of the previously described prior art are moot in view of the above arguments.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this

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action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Pyzocha whose telephone number is (571) 272-3875. The examiner can normally be reached on 7:00am - 4:30pm first Fridays of the bi-week off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on (571) 272-3868. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJP

A handwritten signature in black ink, appearing to read "Andrew Caldwell", with a large, stylized circular flourish at the end.

**ANDREW CALDWELL
SUPERVISORY PATENT EXAMINER**